EA Form R 1/2007

Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. **Applicant/Contact name and address:**

LODESTONE ADVENTURES LLC
PO BOX 1394
EUREKA, MT 59917-1394

RITA, JOSEPH, & RYAN PURDY
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EUREKA, MT 59917-9492

2. **Type of action:** Groundwater Application for Beneficial Water Use Permit 76D 30158701

3. **Water source name:** Groundwater

4. **Location affected by project:**

The three points of diversion (wells) are in Government Lot 6 in the NWNWSW of Section 6, Township 36N, Range 27W, Lincoln County, Montana.

The place of use is the proposed North Star Landing Subdivision in Lincoln County, Montana, legally described as:

- Government Lots 6 and 7 in the W2SW of Section 6, Township 36N, Range 27W
- NESW of Section 6, Township 36N, Range 27W.

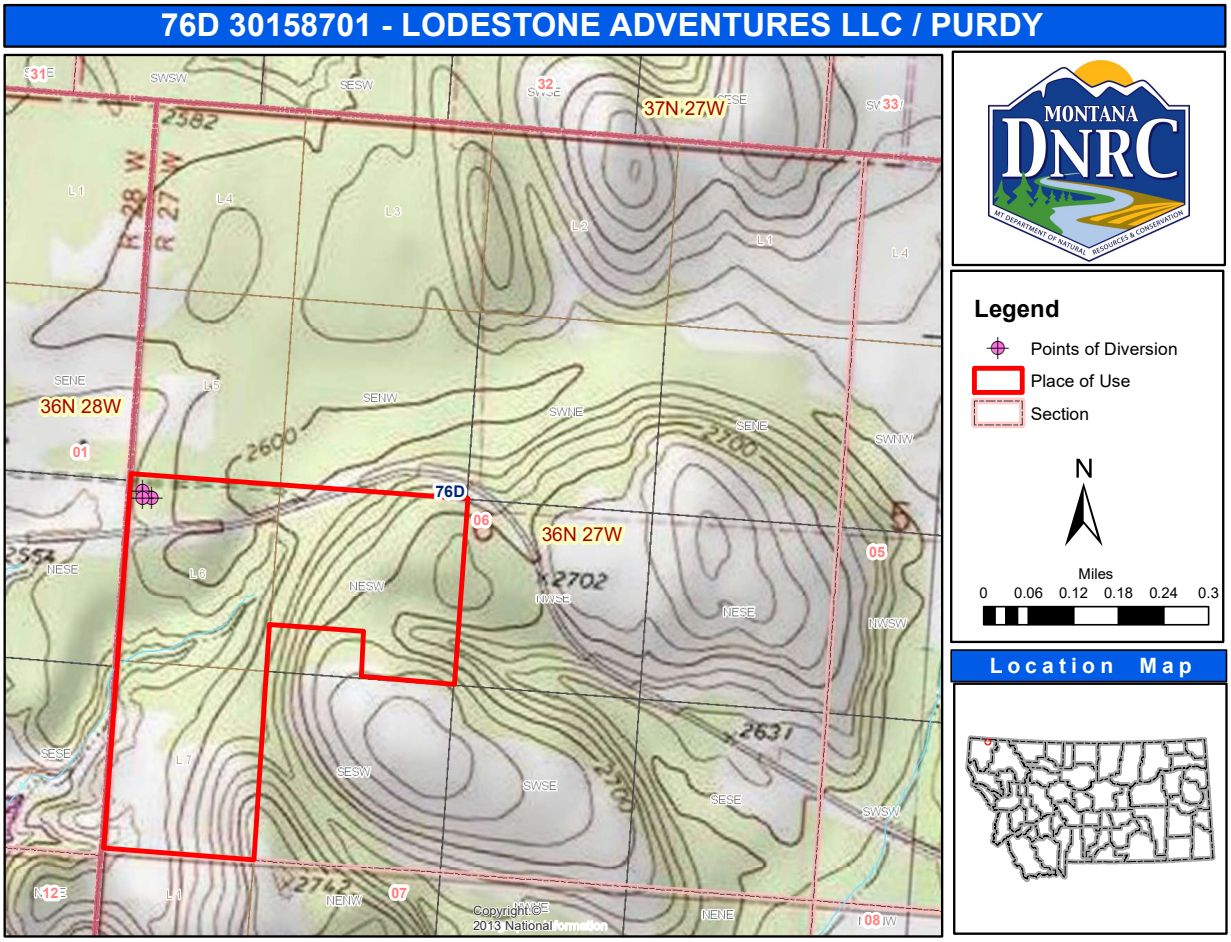

Figure 1. Map of the proposed place of use and points of diversion.

5. Narrative summary of the proposed project, purpose, action to be taken, and benefits:

The Applicant proposes to divert groundwater at 100.0 GPM up to 62.97 AF annually by means of a three production wells (NS-1, NS-2, NS-3; GWIC ID: 303821, 303822, and 300353, respectively) from January 01 – December 31 for multiple domestic use, and from April 15 – October 15 for lawn and garden irrigation. The Applicant proposes to use a volume of 49.01 AF of water to supply the multiple domestic use for 125 residential lots, and 13.96 AF of water to supply the lawn and garden irrigation associated with those lots.

This application seeks to permit water to serve the multiple domestic and lawn and garden irrigation water needs of the proposed North Star Landing Subdivision. North Star Landing is proposed as a single-family residential development consisting of 125 lots. The preliminary plat encompasses a total of 96.1 acres.

Water will be supplied to the proposed subdivision by a community water system consisting of three public water supply (PWS) wells, a pump house, storage tanks, and distribution system. Wells NS-1, NS-2, and NS-3 are 163-feet, 163-feet, and 160-feet deep and were completed on 28 July 2019, 02 August 2019, and 05 January 2019, respectively.

The points of diversion are in the Kootenai River Basin (76D) in an area that is not subject to water right basin closures or controlled groundwater area restrictions.

The DNRC shall issue a water use permit if the applicant proves the criteria in 85-2-311 MCA are met.

6. Agencies consulted during preparation of the Environmental Assessment:

- U.S. Fish and Wildlife Service (USFWS): National Wetlands Inventory Wetlands Mapper
- Montana Natural Heritage Program: Endangered, Threatened Species, and Species of Special Concern
- Montana Department of Fish Wildlife & Parks (MTDFWP): Dewatered Stream Information
- Montana Department of Environmental Quality (MTDEQ): Clean Water Act Information Center
- U.S. Natural Resources Conservation Service (NRCS): Web Soil Survey

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity **-** *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

The Applicant will divert groundwater. The proposed wells are approximately 2,400 feet from Lake Koocanusa and 8,000 feet from the Tobacco River at its intersection with the national hydrography dataset (NHD) polygon representing Lake Koocanusa. The Department determined for permit application 76D 30071039 that the Tobacco River is hydraulically connected to the shallow aquifer and potentially the deep aquifer. Coffin et al. (1971) concluded that Indian Creek and other streams provide recharge to the Deep Aquifer and that the aquifer discharges along the edges of the Tobacco Plains to the Tobacco River and Lake Koocanusa. Based on the Department's determination for permit application 76D 30071039 and Coffin et al. (1971), the Tobacco River and Lake Koocanusa are identified as being potentially depleted by the proposed use.

Depletion by pumping the source aquifer primarily occurs through propagation of drawdown through the overlying confining layer or where the confining unit is incised by Lake Koocanusa. Therefore, depletion effects are expected to be dampened resulting in constant year-round depletion (Table 4) even though consumption from the requested appropriation is concentrated in the summer. The monthly net depletion volumes differ slightly due to the varying number of days in each month. Following procedures described in Section 3.2 of the guidance document developed by the Province of British Columbia (2016) and consistent with DNRC's Memo: Standard Practices for Net Surface Water Depletion from Groundwater Pumping (DNRC, 2018), Lake Koocanusa and Tobacco River are assigned 92% and 8%, respectively, of the net depletion. The proportion of the net depletion assigned to the Tobacco River is less than 10%, which is the recommended cutoff from DNRC (2018). Therefore, all depletions associated with the proposed use are assigned to Lake Koocanusa from the

US/Canada border downstream to Libby Dam. Lake Koocanusa is not on the MTDFWP list of chronically or periodically dewatered streams.

Determination: No significant impact.

Water quality **-** *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

Lake Koocanusa: MDEQ Clean Water Act Information Center's 2020 Water Quality Information report lists Lake Koocanusa as:

i. Water Quality Category 5: Waters where one or more applicable beneficial uses are impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat;

ii. Use Class B-1: Waters classified as suitable for drinking, culinary, and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply;

iii. "Fully supporting" for: primary contact recreation, agriculture, and drinking water; and,

iv. "Not fully supporting," and "threatened," for: aquatic life with probable causes for these designations being Selenium and Flow Regime Modification.

The potential surface water depletions that may result from the proposed project are not anticipated to significantly affect water quality in these sources. The proposed project will not further exacerbate Selenium and Flow Regime Modification issues.

Determination: No significant impact.

Groundwater **-** *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

The three proposed PWS wells, NS-1, NS-2, and NS-3 are completed to 163-feet, 163-feet, and 160-feet below ground surface (bgs), respectively, in a confined sand and gravel aquifer system referred to as the Deep Aquifer, which is overlain by a more transmissive unconfined aquifer. An east-west cross section for the Tobacco plains suggests the Deep Aquifer as locally confined with potential regional hydraulic connections to the shallower more transmissive aquifer.

A Department analysis of Applicant supplied data from a 72-hour aquifer test performed at 53.7 GPM on well NS-1 (GWIC ID: 303821), and 8-hour yield and drawdown tests performed at 55.7 GPM on well NS-2 (GWIC ID: 303822) and 55.1 GPM on well NS-3 (GWIC ID: 300353) concluded that there is a sufficient supply of groundwater in the source aquifer and the hydraulically connected surface water source (Lake Koocanusa) to satisfy the proposed appropriation.

Determination: No significant impact.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

The North Star Landing Subdivision water system is being designed by Jeff Larsen of Larsen Engineering and Surveying, a licensed Professional Engineer in the State of Montana. To date, preliminary design calculations, including an assessment of water use, have been completed. Design submittals will be completed and submitted to Montana Department of Environmental Quality (DEQ) for review and approval prior to installation of the Public Water Supply system, which will be registered with, and regulated by, the Montana DEQ. The system consists of:

- NS-1 (GWIC ID: 303821; completed to a depth of 163-feet below ground surface (BGS) by Davis Brothers Drilling (WWC-651) on July 28, 2019 in the Deep Aquifer);
- NS-2 (GWIC ID: 303822; completed to a depth of 163-feet BGS by Davis Brothers Drilling (WWC-651) on August 2, 2019 in the Deep Aquifer);
- NS-3 (GWIC ID: 300353; completed to a depth of 160-feet BGS by Davis Brothers Drilling (WWC-651) on January 5, 2019 in the Deep Aquifer);
    - Each well will be equipped with a Franklin Electric model 45FHSS4-PE submersible pump with 5.0-HP motor (or approved equivalent) controlled by a variable frequency drive (VFD), a flow control system to restrict flow to 50.0 GPM, and a flow meter with totalizer.
- Ten Ace Roto-Mold Vertical 10,500-gallon storage tanks (operating capacity of 10,000-gallons each, for 100,000-gallons of total storage);
- Two high-capacity (up to 345.0 GPM) booster pumps controlled by VFDs;
- One small-capacity booster pump with VFD for use during low demand periods; and,
- Distribution piping and appurtenant valving and controls.

Water will be diverted based on the water demands with the well pumps being controlled by the water level in the storage tanks. The three PWS wells will operate on an alternating lead-lag pumping schedule. When the water level in the tanks reaches a pre-set level, one of the well pumps will turn on and continue to pump water to the tanks until the water level is replenished. If the water level in the tanks declines to a second pre-set elevation, a second well will be activated. A 1-inch line with pressure transducer will measure the level in the tank. During typical operation, a minimum of 12-inches of free-board will be maintained in the storage tanks. Water will be diverted from each individual wellhead via a 2-inch PVC pipe to a common manifold in the pumphouse. From the well field, water will be conveyed to the storage utility building via approximately 2,700-feet of 4-inch PVC water line. The storage tank site was selected based on the elevation at the site and the topography of the development. However, to achieve the required pressure in the distribution system, booster pumps are required.

Water from the storage tanks will be distributed through the PWS system by a booster pump station capable of producing up to 345.0 GPM at a minimum operating pressure of 35 pounds per square inch (PSI). The booster pumps will be controlled by an automated pump control station using VFDs to control the flow rate and maintain pressures in the water system. The booster pump station will include a smaller pump to act as a pressure maintenance pump during periods of low demand and the larger pumps will be used during periods of peak demand. The high-capacity booster pumps will be operated

on an alternating lead-lag schedule, offering redundancy. Only one of the high-capacity booster pumps will be operated at any time.

The Applicants calculated the following total dynamic head (TDH) conditions during operation based on anticipated operating conditions and the system specifications:

- NS-1: 50.0 GPM at 291-feet and 306-feet TDH when one and two wells are operating, respectively;
- NS-2: 50.0 GPM at 291-feet and 306-feet TDH when one and two wells are operating, respectively; and,
- NS-3: 50.0 GPM at 288-feet and 303-feet TDH when one and two wells are operating, respectively.

The pumps are rated to produce up to 54.0 GPM under the single pump operating conditions (288- to 291-feet of TDH) and 50.0 GPM with both pumps operating (303- to 306-feet of TDH). A flow control valve will restrict the flow from each well to ensure the maximum diversion from each well is limited to 50.0 GPM.

The Eureka Volunteer Fire Department has requested fire hydrants be located so that a hydrant is within 600 to 800 feet of each residence. A total of 21 fire hydrants are anticipated. Further, each hydrant must be capable of producing 250.0 GPM with a minimum residual pressure of 20 PSI for a period of two hours. The system capacity (including storage tank volume and booster pump capacity) has been preliminarily designed to meet these requirements. A fire protection beneficial use was not required for this water right application. The system does not include dedicated fire protection water storage and the use of water for temporary emergency appropriations necessary to protect lives or property does not require a water right per ARM 36.12.105.

Discharge from the system occurs as return flows from lawn and garden irrigation and as discharge from the community drain fields.

Based on the results of the 72-hour constant-rate aquifer test, the 8-hour yield and drawdown tests, anticipated TDH conditions, and the system design and specifications, the Department finds that the diversion and conveyance system is adequate to supply the requested annual volume of 62.97 AF at a flow rate up to 100.0 GPM.

This project diverts from groundwater. It will not create any channel impacts, barriers, dams, or riparian impacts to surface waters. Any surface water depletions are physically and legally available or will be fully mitigated. Existing wells in the source aquifer will still have sufficient water column from which to draw water.

Determination: No significant impact.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species **-** *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants, aquatic species, or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

The Montana Natural Heritage Program website was reviewed to determine if there are any threatened or endangered fish, wildlife, plants, aquatic species, or any "species of special concern" in the project area that could be impacted by the proposed project. Eight animal and one plant species of concern (Table 1) were identified within the project area. Of these species, the Grizzly Bear (*Ursus arctos*) and the Bull Trout (*Salvelinus confluentus*) are listed as threatened by the USFWS. An adequate quantity of water will still exist in the nearby surface water sources to maintain existing populations of Bull Trout, should they exist there currently. This area is already developed, and it is not anticipated that any species of concern will be further impacted by the proposed project.

Table 1. Species of Concern

Species Group	**Common Name**	**Scientific Name**
Mammals	Grizzly Bear	*Ursus arctos*
Mammals	Hoary Bat	*Lasiurus cinereus*
Mammals	Long-eared Myotis	*Myotis evotis*
Birds	Cassin's Finch	*Haemorhous cassinii*
Birds	Pileated Woodpecker	*Dryocopus pileatus*
Fish	Bull Trout	*Salvelinus confluentus*
Fish	Torrent Sculpin	*Cottus rhotheus*
Fish	Westslope Cutthroat Trout	*Oncorhynchus clarkii lewisi*
Vascular Plants	Douglas Bladderpod	*Physaria douglasii*

Determination: No significant impact.

Wetlands **-** *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: N/A, project does not involve wetlands.

Ponds **-** *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: N/A, project does not involve ponds.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE **-** *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

The proposed multiple domestic and lawn and garden uses will not negatively impact the soil quality, stability, or moisture content. The soil types in the project area are:

- Canusa sandy loam, 1 to 20 percent slopes. High capacity to transmit water.
- Rattlebone-Hagadore complex, 2 to 30 percent slopes. Moderately high capacity to transmit water. Nonsaline to very slightly saline.
- Niarada-Niarada, greater slopes-Roosville complex, 2 to 30 percent slopes. Moderately high to high capacity to transmit water. Nonsaline to very slightly saline.

Soils in this area are not likely susceptible to saline seep (mostly nonsaline to very slightly saline).

Determination: No significant impact.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

This area is already partially developed (roads), and any existing native vegetation has likely already been disturbed. It is not anticipated that issuance of a water use permit will contribute to the establishment or spread of noxious weeds in the project area. Noxious weed prevention and control will be the responsibility of the landowners, who must follow local noxious weed regulations.

Determination: No significant impact.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

There will be no impact to air quality associated with issuance of the proposed permit for beneficial use of surface water.

Determination: No significant impact.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

Determination: N/A, project not located on State or Federal Lands.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water, and energy not already addressed.*

All impacts to land, water, and energy have been identified. No further impacts are anticipated.

Determination: No significant impact.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

The project is consistent with planned land uses.

Determination: No significant impact.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

The proposed project will not inhibit, alter, or impair access to present recreational opportunities in the area. The project is not expected to create any significant pollution, noise, or traffic congestion in the area that may alter the quality of recreational opportunities. The proposed place of use and diversion do not exist on land designated as wilderness.

Determination: No significant impact.

HUMAN HEALTH - *Assess whether the proposed project impacts human health.*

This proposed use will not adversely impact human health.

Determination: No significant impact.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
*Yes___ No_**X**_ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights*.

Determination: No impact.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) *Cultural uniqueness and diversity?* None identified.

(*b)* *Local and state tax base and tax revenues?* None identified.

(c) *Existing land uses?* None identified.

(*d)* *Quantity and distribution of employment?* None identified.

(e) *Distribution and density of population and housing?* None identified.

(f) *Demands for government services?* None identified.

(g) *Industrial and commercial activity?* None identified.

(h) *Utilities?* None identified.

(i) *Transportation?* None identified.

(j) *Safety?* None identified.

(k) *Other appropriate social and economic circumstances?* None identified.

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts: None identified.

Cumulative Impacts: None identified.

3. *Describe any mitigation/stipulation measures:*

None.

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*

The only alternative to the proposed action would be the no action alternative. The no action alternative would not authorize the diversion of groundwater.

Part III. Conclusion

1. Preferred Alternative

Issue a water use permit if the Applicants prove the criteria in 85-2-311 MCA are met.

2. Comments and Responses

None.

3. Finding:

*Yes___ No_**X**_ Based on the significance criteria evaluated in this EA, is an EIS required?*

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

No significant impacts related to the proposed project have been identified.

Name of person(s) responsible for preparation of EA:

Name: Travis Wilson
Title: Water Resource Specialist
Date: May 25, 2023